

Effect of carbon dioxide on colour stability and microbiological quality of bulk packaged shallot (*Allium ascalonium*)

ABSTRACT

Colour stability and microbiological quality of bulk packaged shallot puree were evaluated under modified atmosphere conditions (10% CO₂ + 90% N₂). Samples were packed in Ony/LLDPE bags of 0.07 mm thickness as primary packaging material and telescopic carton boxes as secondary packaging, then stored at 5 ± 1 °C (85±95% RH). Shallot puree packed under normal air was used as control and stored under the same conditions. Results showed that L* values and hue angle (H_{ab}) increased, while the chroma values (C*) decreased during the storage period. The Total Plate Count and Lactobacillus spp. count increased gradually during storage period in both samples. However, the populations of coliform, yeast and mould were undetected in all samples throughout storage. Modified atmosphere condition with 10% CO₂ + 90% N₂ was found to be a better storage condition for preserving the colour stability and microbiological quality of shallot puree up to 12 weeks at 5 ± 1 °C (85±95% RH).

Keyword: Shallot puree; Bulk packaging; Carbon dioxide; Microbiological; Colour; Storage